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Legal issues related to the digital economy

Note by the Secretariat

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I. About this note

1. This note reports on the progress made by the Secretariat in its exploratory work on legal issues related to the digital economy (sections III and IV) and puts forward a workplan for consideration by the Commission for addressing specific legal issues that have been identified in the course of that work (section V).

II. Background to exploratory work

2. The Secretariat's exploratory work follows a decision taken by the Commission, at its fifty-first session (New York, 25 June – 13 July 2018), that the Secretariat should “compile information on legal issues related to the digital economy, including by organizing, within existing resources and in cooperation with other organizations, symposiums and other expert meetings”.¹ The decision was made in the context of a proposal by the Government of Czechia that the Secretariat should closely monitor developments relating to the legal aspects of smart contracts and artificial intelligence (AI) (A/CN.9/960), as well as suggestions that had been made in the working groups, in the Commission, and at the Congress held in 2017 on the occasion of the Commission's fiftieth session in respect of the use of distributed ledger technology (DLT), supply chain management, payments and cross-border data flows.

3. An interim report of the Secretariat's exploratory work was provided to the Commission at its fifty-second session (Vienna, 8–19 July 2019) (A/CN.9/981, Annex). An oral report was also provided at that session of the following three events organized by the Secretariat:

(a) The “**Paris event**” – a meeting of experts on data flows and AI, organized with the Institute for Advanced Judicial Studies and the Ministry for Europe and Foreign Affairs of France and held in Paris on 15 March 2019;

(b) The “**Rome event**” – a workshop on legal issues arising from the use of smart contracts, AI and DLT, organized with the secretariat of the International Institute for the Unification of Private Law (Unidroit) under the patronage of the Ministry of Foreign Affairs and International Cooperation of Italy and held in Rome on 6–7 May 2019; and

(c) The “**Bogota event**” – a regional conference on legal issues relating to the digital economy, organized with the Ministry of Information and Communication Technology of Colombia and held in Bogota on 5 June 2019.

4. At the fifty-second session, the Secretariat informed the Commission that its exploratory work had identified several lines of enquiry that might crystallize into more concrete proposals for consideration by the Commission, including: (a) the rights of parties to data transactions for commercial purposes; (b) the tokenization of assets using DLT; and (c) the legal validity of actions of AI systems and associated liability.² It also identified the need for a “taxonomy” of emerging technologies and their applications to common understanding of legal issues, as well as an appraisal of existing UNCITRAL texts to determine how they apply to those issues.³

5. In response, the Commission reaffirmed the “coordinating role” that it played within the United Nations system in addressing legal issues related to digital trade and requested the Secretariat to: (a) continue its exploratory work, in particular in collaboration with the Unidroit secretariat and interested States, and (b) prepare a workplan to address specific legal issues identified in the course of that work, including recommendations both for dealing with them in existing instruments and

¹ *Official Records of the General Assembly, Seventy-third Session, Supplement No. 17 (A/73/17)*, para. 253 (b).

² *Ibid.*, *Seventy-fourth Session, Supplement No. 17 (A/74/17)*, para. 209.

³ *Ibid.*

for the development of specific new instruments, as appropriate.⁴ In that connection, it was emphasized that the exploratory work should focus on legal obstacles and that any future work should “respect the principle of technology neutrality, be future-proof and focus on the disruptive impact of emerging technologies on commercial transactions”.⁵ In response to a separate proposal on the resolution of high-tech disputes, the Commission agreed that exploratory work should also cover issues relating to disputes arising out of transactions in the digital economy.⁶ The Commission concluded that the Secretariat “should conduct exploratory and preparatory work on legal issues related to the digital economy ... for further consideration by the Commission”.⁷

III. Intersessional work

A. Events organized to compile information

6. Since the fifty-second session, the Secretariat has organized the following additional events, on which the Secretariat will report orally at the fifty-third session:

(a) The “**Incheon event**” – the inaugural “Incheon Law and Business Forum” held in Incheon, Republic of Korea, on 18 September 2019, co-organized with the Ministry of Justice of Korea and the Incheon Metropolitan City on the theme of *Challenges of Doing Business in the Digital Economy in Asia and the Pacific*;

(b) The “**Lima event**” – A seminar held in Lima on 12 February 2020, co-organized with the Ministry of Foreign Affairs of Peru on electronic commerce and legal issues related to the digital economy.

7. The Secretariat organized other events which were cancelled or postponed due to measures taken to address the financial situation of the Organization in October 2019 or to measures taken by the United Nations and Member States to contain the Coronavirus disease (COVID-19) pandemic.

8. The feedback received by the Secretariat to those events is consonant with the overarching themes emerging from earlier Paris, Rome and Bogota events, namely:

(a) The law has a role to play in creating certainty for business in the digital economy and predictability in commercial transactions. Greater certainty means reduced costs and risk for business;

(b) The law can foster the use and development of the tools of the digital economy – such as data, digital assets, AI systems, smart contracts, DLT and other emerging technologies – and should not be used as an obstacle to such use and development;

(c) Work at an international level to develop a harmonized response to legal issues could pre-empt fragmented national legal responses, an obstacle to cross-border trade, and contribute to bridging the digital divide;

(d) Given the fast pace at which technology is being developed, any future work should respect the principle of technology neutrality, specifically the need to avoid regulating a particular technology such as DLT, and the need for any new instrument to be “future-proof”. Other relevant principles include party autonomy and transparency; and

(e) Future work should focus above all on the disruptive impact of emerging technologies on commercial transactions.

⁴ Ibid., para. 211.

⁵ Ibid., para. 210.

⁶ Ibid., para. 215.

⁷ Ibid., para. 221 (c).

9. The information that the Secretariat has compiled from these events demonstrates that the tools of the digital economy present new opportunities for business to expand and enhance trading activities at an ever-increasing rate. For example, the Incheon event showcased how a global network of banks was developing a DLT-enabled platform to provide a simplified channel for digitizing the trade finance process, which in turn could significantly reduce the time required for transactions. It also showcased how a start-up based in the Hong Kong SAR was developing an online platform to settle high-volume, small-value disputes. These examples in turn demonstrate that new ways of doing business in the digital economy take place within existing legal structures, and that the interaction between those existing legal structures and new ways of doing business needs to be continuously monitored.

B. Developing a taxonomy of emerging technologies and their applications

10. On 10–11 March 2020, the Secretariat, in collaboration with the Unidroit secretariat, convened an expert group meeting in Vienna to advance work on a taxonomy of emerging technologies and their applications. The meeting was attended – remotely and in person – by 22 legal experts. The deliberations of the expert group were guided by a discussion paper prepared by both secretariats, which covered (a) AI, (b) distributed ledger systems, (c) smart contracts, (d) digital assets, (e) data transactions, and (f) online platforms.

11. Discussions at the expert group meeting focussed on AI, data transactions and digital assets. The current version of the taxonomy addressing each of these areas of focus is set out in the addenda to this note and is submitted to inform the Commission in its consideration of the workplan put forward in section V below. It was also suggested that the taxonomy should address other areas, such as online platforms and dispute resolution.

12. The Secretariat envisages that the taxonomy will be finalized as a standalone document. The Secretariat also considers that, by identifying issues on which international harmonization or legislative guidance is desirable, ongoing work on the taxonomy will serve to facilitate future work by UNCITRAL on legal issues related to the digital economy. It may also serve as a useful reference tool for States in developing their own policy and legal responses to the new ways of doing business using the tools of the digital economy.

C. Appraisal of existing UNCITRAL texts

13. The Secretariat has also proceeded with a preliminary appraisal of existing UNCITRAL texts to determine how they apply to the various legal issues identified in its exploratory work so far. The outcome of this preliminary appraisal is included in the addenda to this note. The Secretariat considers that this work may also identify additional issues on which international harmonization or legislative guidance is desirable and inform concrete proposals for future work.

IV. Results of ongoing exploratory work

A. Distributed ledger technology

14. DLT refers to the technologies and methods (including blockchain) that support a record of data (i.e., a “ledger”) that is retained on multiple networked computers (or “nodes”). Those technologies and methods include cryptographic techniques and consensus mechanisms that are designed to ensure that the same data is retained on each node (i.e., shared, replicated and synchronized) and that the data retained on

each node remains complete and unaltered (i.e., “immutable”).⁸ Distributed ledgers are maintained by software run on the various nodes. Dealings with a distributed ledger may require authorization by a network administrator (a “permissioned” system) or not (a “permissionless” system) and may be facilitated through an online platform.

15. Exploratory work so far has identified legal issues with several applications of DLT, namely so-called “smart contracts” and digital assets, which are set out in addendum 1 (A/CN.9/1012/Add.1) and addendum 2 (A/CN.9/1012/Add.2) to this note, respectively. It has also identified a range of trade-related activities – from finance to logistics – that are supported by DLT-based platforms.⁹ However, this work has also identified that the administration and operation of distributed ledger systems does not itself appear to give rise to any novel legal issues, although certain legal issues, such as private international law issues may become more prominent on account of the geographical distribution of nodes.¹⁰ Accordingly, and in keeping with the emphasis of the Commission on respecting the principle of technology neutrality, it is not proposed that work should focus on DLT as a distinct workstream but rather that DLT-based applications should be kept in mind in ongoing and future work of UNCITRAL in other workstreams, when relevant.

B. Smart contracts

16. As noted above (para. 2), the exploratory work of the Secretariat was mandated in the context of a proposal of the Government of Czechia to monitor developments relating to the legal aspects of smart contracts.

17. As explained in addendum 1, exploratory work so far has identified difficulties with the term “smart contract”, with a proposal instead to analyse related legal aspects through the prism of using AI and automated systems in contracting, which is addressed below (para. 21).

18. Exploratory work has also identified that, while smart contracts are commonly associated with distributed ledgers, they predate the advent of DLT and are deployed in other electronic environments. Accordingly, and in keeping with the emphasis of the Commission on respecting the principle of technology neutrality, it is proposed that any work on smart contracts – through the prism of AI and automated contracting – should not focus solely on their deployment in DLT systems.

C. Artificial intelligence

19. The proposal of the Government of Czechia also addressed AI. It noted that “current laws have not yet recognized the specific features of AI [which] significantly influence dynamics of legal relationships, such as business contracts, liability disputes and investments” (A/CN.9/960, para. 7). As noted above (para. 4), one of the lines of enquiry already identified by the Secretariat to the Commission at its

⁸ Adapted from ITU, *Distributed Ledger Technology Terms and Definitions*, Technical Specification FG DLT D1.1, 1 August 2019, available at www.itu.int/en/ITU-T/focusgroups/dlt/Documents/d11.pdf.

⁹ The secretariat of the World Trade Organization has reported that, by one forecast, the business value of distributed ledger systems is expected to grow to over \$3 trillion by 2030, representing a “global large-scale economic value-add”: *World Trade Report 2018: The Future of World Trade* (Geneva, 2018), p. 35, citing Rajesh Kandaswamy and David Furlonger, “Blockchain-Based Transformation: A Gartner Trend Insights Report”, 27 March 2018.

¹⁰ In this respect, the Secretariat recalls, as reported in A/CN.9/1018, that the Council on General Affairs and Policy of the Hague Conference on Private International Law (CGAP) has invited the Permanent Bureau to monitor developments with respect to the private international law implications of DLT: see Conclusions and Decisions adopted by CGAP at its meeting of 3–6 March 2020, para.15, available at <https://assets.hcch.net/docs/70458042-f771-4e94-9c56-df3257a1e5ff.pdf>.

fifty-second session was the legal validity of actions of AI systems and associated liability.

20. As explained in addendum 1, a rough distinction between the use of **AI to trade** and the use of **AI in trade** may assist in analysing the legal issues related the use of AI. Exploratory work has identified that legal issues arise in both contexts.

21. For **AI to trade**, the key legal issues relate to the adequacy of existing legal rules on the use of AI – and automation more generally – in the negotiation, formation and performance of contracts. Proposed legal solutions – including rules on attribution for the output of AI systems – build on existing solutions for automated systems that have been progressively developed by UNCITRAL in its electronic commerce texts. Those existing solutions only address certain aspects of automated systems, and new solutions could address a broader range of commercial activity that is automated (including through the use of “smart contracts”), as well as the disruptive effects of AI, particularly the use of machine learning algorithms. It is proposed that preparatory work should be undertaken towards the development of harmonized rules on the use of AI and automation in contracting.

22. For **AI in trade**, the key legal issues relate to the adequacy of existing liability regimes to balance the needs of the various actors involved in the use of AI systems, particularly parties operating AI systems and parties affected by that operation. Proposed legal solutions – including a strict liability or no-fault compensation scheme for harm caused by AI systems, the *ex ante* review of AI systems and the development of standards and principles for the use of AI, including ethical use – raise a number of complex public policy questions and reveal differences between legal systems as to the objectives of tort law, as well as in the handling of compensation claims for personal injury and property damage. Moreover, the issues are not confined to the trade context and cut across projects underway at a national level as well as in other international forums. In keeping with the emphasis of the Commission on “proposing solutions that address legal obstacles and take into account public policy considerations”,¹¹ it is proposed that exploratory work should continue on the use of AI in trade with a particular focus on taking stock of the various public policy questions and possible legislative solutions.

D. Data transactions

23. Due to the increased capacity to collect, transmit, process and analyse it in large volumes through technological advances, data has become a commodity in international trade. In its 2018 *World Trade Report*, the secretariat of the World Trade Organization quotes one forecast that the amount of data created each year is projected to increase from approximately 16 trillion gigabytes to 163 trillion gigabytes by 2025.¹² Data-related activities have become a central feature of trade, rather than a side activity in the production of goods and services. According to one report published under the secretariat of the Organization for Economic Co-operation and Development, five years ago global data transfers already indicated an estimated contribution of 2.8 trillion US dollars to global economy activity, or 3.5 per cent of global gross domestic product.¹³

24. As noted above (para. 4), one of the lines of enquiry already identified by the Secretariat to the Commission at its fifty-second session was the rights of parties to data transactions for commercial purposes.¹⁴ Another line of enquiry identified in the course of exploratory work is the legal treatment and protection of data as a

¹¹ *Official Records of the General Assembly, Seventy-fourth Session, Supplement No. 17 (A/74/17)*, para. 210.

¹² *World Trade Report 2018: The Future of World Trade* (Geneva, 2018), p. 28.

¹³ Francesca Casalini and Javier López González, “Trade and Cross-Border Data Flows”, OECD Trade Policy Papers, No. 220 (Paris, 23 January 2019), p. 9.

¹⁴ *Official Records of the General Assembly, Seventy-fourth Session, Supplement No. 17 (A/74/17)*, para. 209.

commodity in itself. Both of those aspects have attracted considerable interest from stakeholders at the various events organized by the Secretariat, particularly from business and the legal profession, and raise a range of legal issues, as outlined in addendum 2. In keeping with the decision of the Commission at its fifty-first session, discussions have sought to “avoid privacy and data protection issues” associated with personal data,¹⁵ as well as intellectual property rights.

1. Rights and obligations of parties to data transactions

25. Exploratory work has identified that, despite their contractual underpinning, uncertainty exists as to the rights and obligations of the parties to data transactions. Accordingly, it is proposed that preparatory work should be undertaken towards the development of harmonized rules that would clarify the rights and obligations of parties to data transactions for commercial purposes. This work would benefit from the significant work already carried out on the topic as part of a joint project of the American Law Institute and European Law Institute to develop principles for a data economy,¹⁶ as well as in the development of contract guidelines on the utilization of data that have been recently published by the Ministry of Economy, Trade and Industry of Japan.¹⁷

2. Data as a commodity

26. A key legal issue identified in exploratory work so far is data ownership. While the prevailing view is that data should not be the object of ownership rights due to its non-rivalrous nature, there is interest among stakeholders in clarifying the nature of the right or “bundle” of rights that, independent of contractual arrangements, might deserve legal recognition and enforceability against third parties. It has been suggested that such a “bundle” of rights might consist of: (a) the right to access or port data, (b) the right to require a person to desist from controlling or processing data, (c) the right to have data corrected, and (d) the right to receive an economic share in profits derived from the use of data. It has been noted that recognizing the existence of such rights could help to protect actors in the data economy which have contributed to the data value chain.

27. It is not proposed that any future work on this aspect of data transactions would affect rights under existing intellectual property law (e.g., copyright, protection of trade secrets and database rights) or competition law. Even so, such work may raise significant public policy issues by introducing a new parallel legal regime for data that requires a careful consideration of the interests of actors involved and broader social, economic and legal impacts. For this reason, it is proposed that exploratory work should continue on rights in data as a commodity, including possible legislative responses.

E. Digital assets

28. As noted above (para. 4), one of the lines of enquiry already identified by the Secretariat to the Commission at its fifty-second session was the tokenization of assets (i.e., the creation and transaction of digital tokens that represent or are otherwise connected to a “real world” asset).¹⁸ Exploratory work carried out so far has identified that not only the tokenization of assets, but also the creation and transaction of digital assets themselves (i.e., digital tokens representing intrinsic value without any

¹⁵ Ibid., *Seventy-third Session, Supplement No. 17 (A/73/17)*, para. 253(b).

¹⁶ For information on this joint initiative, see www.europeanlawinstitute.eu/projects-publications/current-projects-feasibility-studies-and-other-activities/current-projects/data-economy/.

¹⁷ Japan, Ministry of Economy, Trade and Industry, *Contract Guidelines on Utilization of AI and Data: Data Section* (June 2018), English translation available at www.meti.go.jp/press/2019/04/20190404001/20190404001-1.pdf.

¹⁸ *Official Records of the General Assembly, Seventy-fourth Session, Supplement No. 17 (A/74/17)*, para. 209.

connection to a “real world” asset, such as cryptocurrency), raise a range of legal issues. Those legal issues are outlined in addendum 3 (A/CN.9/1012/Add.3).

29. Possible future work on warehouse receipts (A/CN.9/1014) and railway consignment notes (A/CN.9/1034) offers an opportunity for the Commission to consider the tokenization of assets in concrete settings. As work on UNCITRAL Model Law on Electronic Transferable Records (MLETR) demonstrates, digital token-based systems are used for electronic transferable records which, depending on the substantive law, include warehouse receipts and transport instruments such as bills of lading and air waybills.¹⁹ It is thus conceivable that future work will consider digital warehouse receipts and digital consignment notes, respectively, and the requirements for systems that support tokens constituting such instruments.

30. As for digital assets in the form of cryptocurrency, possible future work on civil asset tracing and recovery may provide a forum for considering the legal treatment of digital assets, particularly from the perspectives of property law and insolvency law. One of the main conclusions drawn from the Secretariat’s exploratory work on that topic and from the colloquium organized by Secretariat on 6 December 2019 is that the recovery of digital assets should be taken into account in any future work (A/CN.9/1008, para. 48(b)).

31. For these reasons, it is not proposed at this time for work to proceed on a standalone project on digital assets. Rather, it is proposed that the Secretariat should continue to collaborate with the Unidroit secretariat on its ongoing project on digital assets. In this regard, the Secretariat draws attention to the decision of the Unidroit Governing Council at its ninety-eighth session (8–10 May 2019) to ask the Unidroit secretariat to “conduct further research to narrow down the scope of the project”, which, based on the conclusions of the Rome event, “would be initially confined to digital assets”.²⁰ The Secretariat also notes that the Governing Council is expected to take a decision on the scope and priority of this project at its ninety-ninth session, which is provisionally scheduled for 23–25 September 2020.

32. It is possible that the appraisal, noted above (para. 13), of existing UNCITRAL texts on secured transactions will identify concrete proposals for future work to address using digital assets as collateral, as well as to represent security rights in “real world” assets. It is also possible that the appraisal of existing texts on insolvency – together with future work on civil asset tracing and recovery – will identify concrete proposals for future work to address the treatment of digital assets in the form of cryptocurrency in the event of insolvency.

F. Online platforms

33. Online platforms facilitate a range of trading activities, such as buying and selling financial products and electronic payments, and trade-related activities, such as information management for traders (e.g., cloud storage).²¹ Online platforms not only create new trading opportunities, but also new ways of trading, which may disrupt traditional trading relationships. They also offer novel solutions for the resolution of disputes (discussed in paras. 36 and 37 below).

¹⁹ See explanatory note to the MLETR: *UNCITRAL Model Law on Electronic Transferable Records* (United Nations publication, Sales No. E.17.V.5), paras. 18 and 38.

²⁰ *Report of the Governing Council*, C.D. (98) 17, available at www.unidroit.org/english/governments/councildocuments/2019session/cd-98-17-e.pdf, paras. 54–58. A proposal by the Unidroit secretariat on the scope of the project is set out in document C.D. (99) A.4, available at www.unidroit.org/english/governments/councildocuments/2020session/cd-99-a-04-e.pdf, paras. 16–33.

²¹ The Secretariat has recently published its *Notes on the Main Issues of Cloud Computing Contracts*, available at https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/19-09103_eng.pdf.

34. Exploratory work carried out so far has revealed interest among stakeholders in online platforms. Areas of particular interest include (a) the various business models and legal structures used for these platforms, including for structuring the relationships between platform operators (including both practical operators and legal owners) and platform users (including buyers and sellers of goods and services), and (b) the methods used for executing transactions, enforcing contracts, and managing claims or performance disruptions. Reference has been made to legislation enacted in several jurisdictions²² that specifically regulate online platforms, including by imposing new obligations on platform operators beyond the “web” of contracts between the platform operator and platform users and between platform users.²³ While those laws are primarily designed for consumer protection, some of the principles underlying them may be relevant in a business-to-business context.

35. It is proposed that the exploratory work on legal issues related to the use of online platforms should continue.

G. Dispute settlement

36. Another line of enquiry that has emerged from the exploratory work carried out so far is the interaction between emerging technologies and their applications and the resolution of disputes. This topic has several aspects, including:

(a) The use of AI and automated systems to handle complaints and resolve disputes, including through the use of a mechanism mandated by an online platform for complaints and disputes between platform users – this aspect was already foreshadowed at the fifty-second session of the Commission, where it was noted that legal issues, such those arising from the use of AI systems, cut across many areas of the current work programme, including dispute resolution;²⁴ and

(b) The use of existing dispute resolution processes for disputes arising out of transactions in the digital economy, including within high-tech industries – this aspect was discussed at the fifty-second session of the Commission in response to a proposal by the Governments of Israel and Japan on possible future work in the field of dispute resolution in international high-tech related transactions (A/CN.9/997).²⁵

37. With respect to the first aspect (**online dispute resolution mechanisms**), online platforms that incorporate mandatory mechanisms to handle complaints and resolve disputes continue to emerge, as do standalone online dispute resolution platforms. Those mechanisms may use AI and automated systems for case management as well as to generate terms of settlement. Nearly all legal systems presuppose human analysis and judgment as an essential element of recognized dispute settlement mechanisms such as mediation and arbitration. The use of AI and automated systems

²² China, Electronic Commerce Law (31 August 2018); European Union, Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on Promoting Fairness and Transparency for Business Users of Online Intermediation Services.

²³ An example of a contractual analysis of online trading platforms is provided in the judgment of the Singapore International Commercial Court in the recent case of *B2C2 Ltd. v. Quoine Pte. Ltd.*, which is discussed further in addendum 1. That case concerned the relationship between the operator and users of the QUOINExchange cryptocurrency exchange platform. A user (B2C2) argued that the trading contracts between users were part of a “spider’s web” of contracts, with the operator (Quoine) as the central counterparty to both sides of a cryptocurrency trade made using the platform. The operator argued that the trading contracts were formed directly between users. International Judge Simon Thorley at first instance agreed with the latter argument and noted that, in addition, there was a “platform contract” between the operator and users governing the use of the service provided by the platform: *B2C2 Ltd. v. Quoine Pte. Ltd.*, Suit No. 7 of 2017, Judgment, 14 March 2019, [2019] SGHC(I) 03, paras. 126 and 131. The Court of Appeal of Singapore agreed with this analysis on appeal: *Quoine Pte. Ltd. v. B2B2 Ltd.*, Civil Appeal No. 81 of 2019, Judgment, 24 February 2020, [2020] SGCA(I) 02, para. 50.

²⁴ *Official Records of the General Assembly, Seventy-fourth Session, Supplement No. 17 (A/74/17)*, para. 210.

²⁵ *Ibid.*, paras. 212–215.

thus raises a number of issues relating to the application of existing laws, including the UNCITRAL texts on arbitration and mediation, such as the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, the UNCITRAL Model Law on International Commercial Arbitration and the United Nations Convention on International Settlement Agreements Resulting from Mediation. Those issues include whether the parties can validly refer terms generated by an AI system to settlement and whether a corresponding agreement would be enforced as an arbitral award or settlement agreement. UNCITRAL has previously done work on online dispute resolution, which resulted in the adoption in 2016 of the Technical Notes on Online Dispute Resolution. Exploratory work, including the discussions at the Incheon event, has revealed interest among stakeholders in developing legal rules to facilitate and standardize the use of those mechanisms. It is therefore proposed that the exploratory work on this aspect should continue.

38. With respect to the second aspect (**disputes arising out of transactions in the digital economy**), the Secretariat is currently working with interested States to organize a colloquium to explore possible future work by the Commission, as requested by the Commission at its fifty-second session.²⁶ The Secretariat will report to the Commission on this work at a future session.

V. Workplan

39. In view of the progress report set out in sections III and IV above, the Secretariat puts forward the workplan set out in Table 1 below for consideration by the Commission.

Table 1

Proposed workplan on legal issues related to the digital economy

<i>Workstream</i>	<i>Mandate</i>
Legal taxonomy	The Secretariat continues to develop the legal taxonomy of emerging technologies used in digital trade and their applications, in cooperation with the Unidroit secretariat and Permanent Bureau of the Hague Conference on Private International Law ²⁷ (see paras. 10 to 11 above), with a view to publishing it in due course as an UNCITRAL instrument, a Secretariat document or a joint publication with partner organization.
Appraisal of existing UNCITRAL texts	The Secretariat continues its appraisal of existing UNCITRAL texts (see para. 13 above). This work includes identifying whether any amendments to these texts are needed to address emerging technologies and their applications, with a view to formulating proposals for possible future work.
AI and automated contracting (AI to trade)	The Secretariat carries out preparatory work towards a legislative text on the use of AI and automated systems in the negotiation, formation and performance of contracts (see para. 21 above and addendum 1). This work uses existing UNCITRAL texts – namely the MLEC and ECC – as a starting point. Consistent with the coordinating role played by the Commission within the United Nations system in addressing legal issues related to digital trade, this work is undertaken in coordination with other United Nations bodies, specialized agencies and other international organizations, and involves the organization of colloquiums to refine the scope of the topic. The outcome of preparatory work is submitted to Working Group IV for consideration with a view to a recommendation

²⁶ Ibid.

²⁷ See footnote 10 above.

<i>Workstream</i>	<i>Mandate</i>
	from the Working Group to the Commission as to the inclusion of the topic on the work programme of the Working Group or another Working Group.
AI enabled goods and services (AI in trade)	The Secretariat continues exploratory work in this area (see para. 22 above and addendum 1) pursuant to its current mandate (see paras. 2 and 5 above), including by organizing, within existing resources and in cooperation with other organizations and interested States, symposiums and other expert meetings, and reports back to the Commission at its next session on the progress of this work.
Rights and obligations of parties to data transactions	The Secretariat carries out preparatory work towards a legislative text on the rights and obligations of parties to data transactions for commercial purposes (see para. 25 above and addendum 2). Consistent with the coordinating role played by the Commission within the United Nations system in addressing legal issues related to digital trade, this work is undertaken in coordination with other United Nations bodies, specialized agencies and other international organizations, and involves the organization of colloquiums to refine the scope of the topic. The outcome of preparatory work is submitted to a Working Group IV for consideration with a view to a recommendation from the Working Group to the Commission as to the inclusion of the topic on the work programme of the Working Group or another Working Group.
Data as a commodity	The Secretariat continues exploratory work in this area (see paras. 26 and 27 above and addendum 2), in keeping with its current mandate (see paras. 2 and 5 above) pursuant to its current mandate (see paras. 2 and 5 above), including by organizing, within existing resources and in cooperation with other organizations and interested States, symposiums and other expert meetings, and reports back to the Commission at its next session on the progress of this work.
Asset tokenization	The creation and transaction of digital tokens representing “real world” assets is taken into account in any future work on warehouse receipts and railway consignment notes (see para. 29 above and addendum 3). The Secretariat continues to collaborate with the Unidroit secretariat on its ongoing project on digital assets (see para. 31 above), in keeping with its current mandate (see paras. 2 and 5 above). The Secretariat takes into account the use of digital tokens in its appraisal of existing UNCITRAL texts, including secured transactions texts and the MLETR (see para. 32 above).
Digital assets in the form of cryptocurrency	The creation and transaction of digital assets is taken into account in any future work on civil asset tracing and recovery (see para. 29 above and addendum 3). The Secretariat continues to collaborate with the Unidroit secretariat on its ongoing project on digital assets (see para. 31 above), in keeping with its current mandate (see paras. 2 and 5 above). The Secretariat takes into account the use of digital assets in the form of cryptocurrency in its appraisal of existing UNCITRAL texts, including insolvency texts (see para. 32 above).
Online platforms	The Secretariat continues exploratory work in this area (see paras. 33 to 35 above) pursuant to its current mandate (see paras. 2 and 5 above), including by organizing, within existing resources and in cooperation with other organizations and interested States, symposiums and other expert meetings, and reports back to the Commission at its next session on the progress of this work. Among other things, this work covers (a) the various business models and legal structures used for these platforms, including for structuring the relationships between platform operators and platform users, and (b) the methods used for executing transactions, enforcing contracts, and managing claims or performance disruptions. In

<i>Workstream</i>	<i>Mandate</i>
	keeping with the current mandate of the Secretariat (see paras. 2 and 5 above), this exploratory work is carried out with a view to formulating concrete proposals for international harmonization or legislative guidance.
Dispute resolution	The Secretariat continues exploratory work in this area (see paras. 36 to 38 above) pursuant to its current mandate (see paras. 2 and 5 above), including by organizing, within existing resources and in cooperation with other organizations and interested States, symposiums and other expert meetings, and reports back to the Commission at its next session on the progress of this work. In keeping with the current mandate of the Secretariat (see paras. 2 and 5 above), this exploratory work is carried out with a view to formulating concrete proposals for international harmonization or legislative guidance.
